GLENN COUNTY GROUNDWATER MANAGEMENT PLAN

DEVELOPMENT OF A LOCALLY DRIVEN GROUNDWATER MANAGEMENT PLAN (Ordinance #1115)

The economy of Glenn County is primarily based on irrigated agriculture. Water for agriculture is provided by many surface water districts and from groundwater. Most water for municipal, industrial and domestic purposes is obtained from groundwater. There was apprehension in the community that surface water districts would increase their groundwater use in the future and sell their surface water to others and possibly harm their neighbors who depend on groundwater.

In 1991-92 groundwater users successfully proposed legislation to protect groundwater resources. The bill passed both houses of the California legislature, but then was vetoed by the Governor due to last minute opposition from surface water districts. Both sides of this acrimonious fight were well intentioned, but held totally opposite views on the matter and made no attempt to negotiate policy that would serve the needs of all water users. No further attempts to formulate a groundwater management plan were made in the County until 1994 when many of the water districts and the county Board of Supervisors realized that groundwater management is necessary and that it would require participation of all water users in the County. [See Map of Water Sources in Glenn County.]

As a result, a broadly based ad-hoc group of community volunteers was formed in March 1994 to meet regularly to explore the differences and commonalties of the needs and goals of all stakeholders. The group recognized the potentially opposing positions of various groundwater users in the county and sought to resolve past conflicts and work cooperatively to manage the groundwater resource. This group developed a mission and goals statement and a Memorandum of Understanding. These two documents led to a better understanding of the problems inherent in providing the autonomy needed by the water districts and the protection needed by private pumpers. In response to these two documents, the Glenn County Board of Supervisors issued a Minute Order establishing the Glenn County Water Advisory Committee (GCWAC) in 1997.

The GCWAC continued to explore numerous options including the formation of a special district to allow development of a countywide AB 3030 plan in coordination with already existing AB 3030 plans in many of the surface water districts. An operating MOU option was explored as well as the complete examination of a no-export type of ordinance. None of these schemes appeared to achieve the results needed to meet a mutually beneficial and publicly acceptable end.

In early 1999 the GCWAC began to focus on a countywide ordinance that did not attempt to control groundwater use, including export, as long as the aquifer system was not harmed and safe yield was not exceeded. But estimating safe yield appeared to be nearly impossible to accomplish given the inherent difficulties in determining safe yield and that no funding was available to do the required studies.

The Basin Management Objective (BMO) concept was developed to overcome many of the usual problems of defining safe yield and overdraft in the Sacramento Valley by the Department

of Water Resources, Northern District Groundwater Section. The BMO concept encompassed six key elements that were included in Ordinance #1115 (FAQ), The Glenn County Groundwater Management Plan, adopted by the Board of Supervisors on February 15, 2000.

SIX KEY ELEMENTS
BASIN MANAGEMENT OBJECTIVE
GROUNDWATER MANAGEMENT

1. Management Areas and Sub-Areas
2. BMO Parameters
3. Public Input
4. Monitoring
5. Adaptive Management
6. Enforcement/Conflict Resolution

1. MANAGEMENT AREAS and SUB-AREAS

Areas of the county where irrigated agriculture is conducted were included in the overall management area. This area is primarily in the Sacramento Valley portion of the county. The management area was subdivided into 17 sub-areas based first upon surface water district boundaries. Areas not within water district boundaries were then further divided along known groundwater sub-basin boundaries into similar hydrological and agricultural areas. The large, centrally located, private pumper area was divided into two sub-areas using boundaries between Board of Supervisors' districts. The underlying desire when defining sub-areas is to group groundwater users together who have the same vested interest in maintaining the groundwater resource at mutually agreeable levels. [See map, Glenn County BMO Subareas.]

2. BMO PARAMETERS

Ordinance 1115 requires that management objectives for minimum groundwater levels, minimum water quality and maximum inelastic subsidence be established for each of the 17 sub-areas. The management objectives can be considered a set of trigger points where action will be taken if the BMO levels are exceeded. Representatives from each sub-area established the objectives, the methodology used, and the wells to be monitored for their own area. (See Methods For Determining BMOs.) A "one size fits all regulation" does not exist in Glenn County, rather the individual BMOs for each sub-area were compiled into a countywide BMO, which was approved by the Board of Supervisors after holding public workshops and a public hearing. The management objectives for each sub-area are evaluated annually and any changes must be approved by the Board of Supervisors. A basic tenet of the BMO for each sub-area is that water management practices or activities in one management sub-area shall not negatively impact the water management objectives of another sub-area.

At this time sub-area BMOs have been established for groundwater levels only. Water quality monitoring began in the summer of 2003. Localized monitoring for subsidence began in the summer of 2002 with the installation of an extensometer. Installation of a GPS-based wide area subsidence monitoring system is planned for 2004. It is anticipated that the BMOs will change as more data becomes available and experience is gained in evaluating the data.

3. PUBLIC INPUT

Public input to the process is a critical factor for the successful implementation of a groundwater management plan. Public input is sought and provided through several different avenues. Primary public input is provided through the Glenn County Water Advisory Committee (GCWAC), which consists of 21 members who are not affiliated with the county or county government and one County Supervisor as an ex officio member. Each of the 17 sub-areas has one representative on the committee. The GCWAC also includes one representative each from the Glenn County Farm Bureau, the Resource Conservation District, the City of Orland, and the City of Willows. It is the primary responsibility of each GCWAC representative to establish the management objectives for their corresponding management sub-area and to provide a communication path between the local groundwater users, the GCWAC and the Board of Supervisors.

The GCWAC also maintains a Technical Advisory Committee (TAC) that provides technical assistance and advises the GCWAC. The TAC reports directly to the GCWAC. This group includes technical representatives from appropriate Federal, State, County, and local agencies, as well as the general public. The Board of Supervisors appoints the TAC representatives. [See Organizational Structure Chart.]

4. MONITORING

Objective scientific monitoring and rapid dissemination of all data collected is critical to the success of groundwater management based on basin management objectives. Using historical groundwater levels as a baseline to judge when groundwater levels have reached abnormal levels is the basis of many of the sub-area BMOs. The California Department of Water Resources has been measuring groundwater levels semi-annually in many wells in the county for a long period of time. Many of the sub-areas are using data from selected wells in the DWR monitoring grid to establish and monitor BMO compliance. As funding becomes available, it is anticipated that dedicated monitoring wells will be added to the network to fill in areas where data is lacking, or in areas where more definition is needed.

Valid summer water level measurements are difficult to obtain using the existing monitoring grid and a data gap exists for this key period of heavy water use. In spite of the technical difficulties involved, summer measurements were made on a biweekly basis starting July 15, 2001 until Sept. 6, 2001 by the DWR. Contour maps made from these summer measurements have greatly increased understanding of the aquifer system. As dedicated monitoring wells become available and a body of summer measurements is accumulated, BMOs may be established for summer groundwater levels.

As a practical matter, the wells selected for the groundwater quality-monitoring network are different from the groundwater level monitoring network. The groundwater quality network was established during the summer of 2003.

Two extensometers have been installed to continuously monitor for subsidence over localized areas. The extensometers have been placed in areas with heavy groundwater pumping.

5. ADAPTIVE MANAGEMENT

Adaptive management resulting from the Glenn County ordinance can take different forms. First, are the types of adaptive management elements outlined below under Enforcement/Conflict Resolution. These adaptive management elements are utilized to resolve non-compliance with the management objectives. They may require coordination among all water users in a sub-area or among two or more sub-areas.

Secondly, data collected as part of this management program can be utilized at the farm level. Growers can evaluate the probable availability and cost of using groundwater to irrigate their crops each year and for different hydrologic conditions. Growers can incorporate this information into their management plans and decisions. It may influence their selection of the types and acreages of crops planted based on crop water requirements, growing season, and market value. In the case of established tree and vine crops where crop rotation is not a management option, growers may adopt irrigation techniques to minimize the negative effect of drought conditions on crop performance. Readily available records of groundwater conditions should help growers evaluate the highest return to cost ratio for various crops they may choose to grow during any particular growing season and water year.

6. ENFORCEMENT/CONFLICT RESOLUTION

Groundwater management has not been too successful in California because no one wants to relinquish control over the resource. For groundwater management to work there must be some controlling authority that can take corrective action to resolve problems when they arise. In Glenn County, the controlling authority is the Board of Supervisors, but their police powers are only invoked when conflicts between subareas cannot be resolved through cooperation and negotiation between the affected sub-areas.

If a BMO threshold is exceeded, a process is set in motion. First the TAC undertakes a fact finding process to determine the regional extent, magnitude, and cause(s) of the non-compliance. The TAC then reports its findings to the WAC and recommends possible corrective actions to resolve the problem. The GCWAC then tries to resolve the problem in the affected area through negotiations. Some of the possible actions available that may be taken by the GCWAC might be to coordinate the following voluntary actions in the affected area:

· Rescheduling and/or redistributing groundwater extractions
· Termination of groundwater substitution extractions, if deemed the cause of the non-compliance
· Reduction of groundwater extraction rates
· Termination of groundwater extractions
· Development of groundwater recharge programs
· Modification of BMO levels

If the GCWAC and affected parties cannot resolve the problem at the local level, the GCWAC may recommend preferred action(s) among those available to the Board of Supervisors to resolve the non-compliance. The Board of Supervisors may take the enforcement action(s) they deem necessary to resolve the non-compliance. Enforcement actions do not apply to domestic wells.

Since the groundwater management plan is realatively new and not fully implemented, the enforcement and conflict resolution process has not been vigorously tested. However, it is believed that negotiated resolutions are preferable to invoking the police powers of the County.

FULFILLING THE VISION

When water users within the county feel secure that their own water supply is safe and reliable, then cooperative efforts and partnerships will be made to better manage and coordinate all of the available water resources to achieve the vision. Developing and implementing the Glenn County Groundwater Management Plan is a major step in the path toward the goal.